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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

VILLECCO, JOHN M

ART UNIT PAPER NUMBER

2612

DATE MAILED: 04/05/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/492,317

Applicant(s)

MISAWA, TAKESHI

Examiner

John M. Villecco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 14, 15 and 19-21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION II

Response to Arguments

1. Applicant's arguments filed January 30, 2004 have been fully considered but they are not persuasive.
2. Regarding claims 1 and 12, applicant argues that since Umeda only reads out green pixels in a CMOS imager, it would not have been obvious to do so in a CCD imager. However, Umeda is used only to show that it is well known in the art to read out only green pixels from an imaging device. The fact that Umeda uses a CMOS imager is inconsequential in this 103 rejection. The basic idea that an imager can read out only a specific color of imaging pixels is the premise being relied upon by the examiner. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamada and Ueno such that only the green pixels of the image sensor are read out in order to give the user more options and to also speed up readout of the pixel signals.
3. Therefore the rejections from the previous office action will be repeated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 8, 12, 13, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (Japanese Publ. No. 10-136391) in view of Ueno (U.S. Publ. No. 2001/0043276) and further in view of Umeda et al. (U.S. Patent No. 6,452,632).

6. Regarding *claim 1*, Yamada discloses an image sensor which includes a plurality of photosensitive cells (11-15) which are arranged two-dimensionally in an array. As shown in Figure 7 the cells are arranged obliquely from each other at positions shifted from each other by half of the pitch in both the horizontal and vertical directions. Additionally, Yamada discloses that the image sensor, which is inherently disposed in an image pickup section, includes a set of color filters for separating the incident light into red, green and blue components arranged in the column direction. The color filters are used for separating the incident light into three separated colors. In Figure 1, Yamada discloses an arrangement for reading out charge from the photosensitive devices (11-15). Additionally, Yamada discloses the use of vertical transfer registers (16) and a horizontal transfer register (19) for transferring the charge out of the pixels. While not specifically disclosed, the arrangement of Figure 1 would inherently include a signal reading out section for transferring the signal charge from the photosensitive devices (11-15) to the transfer registers (16-18). Furthermore, as shown in Figure 3, Yamada teaches that the green filter is arranged in the column direction.

Yamada, however, fails to disclose a mode setting section, a drive signal generator, or a control section. Ueno, on the other hand, discloses that it is well known in the art to drive an imager sensor in two different modes and to generate signals for reading out the image signals in the two different modes. More specifically, Ueno discloses a mode signal which is input to the timing generation circuit (17) wherein the timing generation circuit generates timings for reading

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out signals from the pixels (11). The timing generator (17) receives a mode signal for specifying the mode which the imager should be in (col. 5, lines 51-61). Based on the mode signal the timing generator generates timing signals for the whole pixel read out mode or the thinned read out mode. The microcomputer (26, Figure 5) controls generation of the drive signal (col. 5, lines 26-50). By controlling the timing of the image sensor so that when in various modes, readout of various pixel arrangements is performed, the imager is able to enable faster readout for performing various camera controls (col. 1, line 64 – col. 2, line 22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to read out in various modes so that the readout time can be reduced for various imaging operations.

Additionally, neither Yamada nor Ueno specifically disclose that the specifying readout mode reads out the at least one separated column arranged in the column direction. Umeda, on the other hand, discloses that it is well known in the art to read out only the green pixels from an image sensor. More specifically, in column 15, line 21 to column 16, line 30, Umeda discloses that the green pixels are used to produce a luminance value in order to display a black and white image. Therefore, by selectively outputting only the green pixels, as shown in Figure 22C, one can have more options when composing an image. Furthermore, by outputting fewer pixels imaging time can be sped up. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to output only the green pixels so that a user is given more options when composing an image and so that image time is sped up.

7. Regarding *claim 2*, as shown in Figure 3, Yamada shows that the separated colors are red, green, and blue. Furthermore, Yamada shows that the color which is arranged in a column is the color green.

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8. With regard to **claim 3**, Yamada discloses that the color filter includes a checkered pattern in which the color filters of the color G are arranged in the in a stripe in the column direction and in a square lattice, and the color filters of the same color of the R or B are arranged diagonal from each other interposing the G color filter.

9. As for **claim 4**, Ueno discloses that when reading out pixels in the thinned reading mode, the timing generator (17) applies the signal to the readout gate segment (12) adjacent to the pixel (11). See column 4, lines 25-47 and column 6, lines 15-56. Clearly when reading out only the green pixel charge, as taught by Umeda, the readout signal would only be applied to the transfer gate adjacent to the pixel.

10. Regarding **claim 8**, Ueno discloses that when reading out pixels in the thinned reading mode, the timing generator (17) applies the signal to the readout gate segment (12) adjacent to the pixel (11). See column 4, lines 25-47 and column 6, lines 15-56. Clearly when reading out only the green pixel charge, as taught by Umeda, the readout signal would only be applied to the transfer gate adjacent to the pixel.

11. **Claim 12** is considered a method claim corresponding to claim 1. Please see the discussion of claim 1 above.

12. **Claim 13** is considered a method claim corresponding to claim 2. Please see the discussion of claim 2 above.

13. **Claim 17** is considered a method claim substantively equivalent to the combination of claims 6 and 7. Please see the discussion of claims 6 and 7 below.

14. **Claim 18** is considered a method claim substantively equivalent to the combination of claims 6 and 7. Please see the discussion of claims 6 and 7 below.

15. Claims 5-7, 9-11, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (Japanese Publ. No. 10-136391) in view of Ueno (U.S. Publ. No. 2001/0043276) and further in view of Umeda et al. (U.S. Patent No. 6,452,632) and Suga et al. (U.S. Patent No. 5,363,137).

16. Regarding *claim 5*, as mentioned above in the discussion of claim 4, Yamada, Ueno, and Umeda disclose all of the limitations of the parent claim. Additionally, as mentioned above, Ueno discloses that by controlling the timing of the image sensor so that when in various modes, readout of various pixel arrangements is performed, the imager is able to enable faster readout for performing various camera controls (col. 1, line 64 – col. 2, line 22). However, none of the aforementioned references discloses that in the specifying read out mode read out is performed in a predetermined region which is symmetrical with the center in the column direction and extending at least $\frac{1}{4}$ of more of the imaging field. Suga, on the other hand, discloses that it is well known in the art to include a high-speed readout of pixels in the center of an imaging area in order to perform autofocus. The pixel area is formed in the central portion of an imaging plane (col. 6, line 63) and is $\frac{1}{4}$ or less that the whole image plane. By reading out only a portion of the image plane, the camera operation of performing AF can be increased. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to read out only a portion of the image-sensing plane so that the speed of imaging preparation operations can be increased.

17. With regard to *claim 6*, Ueno teaches two different specifying electrodes (V2 and V2') used for reading out pixels in the whole pixel readout and the thinned readout. Additionally,

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Yamada teaches in Figure 8 that each pixel has four transfer electrodes (39a-42a) associated with it. Therefore, two pixels and 8 electrodes form one group. Clearly, when reading out only the green pixels of Yamada, only the electrodes associated with those pixels would be activated.

18. As for *claim 7*, as shown in Figure 8 of Yamada a green pixel of Yamada is read out to a first transfer electrode and the fifth transfer electrode. The red and blue pixels are read out to a third and seventh transfer electrodes.

19. *Claim 9* is considered substantively equivalent to claim 5. Please see the discussion of claim 5 above.

20. *Claim 10* is considered substantively equivalent to claim 6. Please see the discussion of claim 6 above.

21. *Claim 11* is considered substantively equivalent to claim 7. Please see the discussion of claim 7 above.

22. *Claim 16* is considered substantively equivalent to claim 5. Please see the discussion of claim 5 above.

Allowable Subject Matter

23. **Claims 14-15 and 19-21 are objected to** as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The following is a statement of reasons for the indication of allowable subject matter:

Regarding *claim 14*, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest generating a column transfer which sets a

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transfer distance to a value equivalent to two lines used in the method described in the previous claims.

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- *Parulski (U.S. Patent No. 4,876,590)* discloses an imaging system for addressing only green pixels to be displayed using a low resolution mode.

26. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any response to this final action should be mailed to:

Box AF
Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

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(703) 308-6306, (for formal communications; please mark "**EXPEDITED PROCEDURE**"; for informal or draft communications, please label "**PROPOSED**" or "**DRAFT**")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service desk whose telephone number is (703) 306-0377.



John M. Villecco
3/29/04



NGOC-YEN VU
PRIMARY EXAMINER